

## Does Health Literacy cause better women's self-care performance? A Cross-Sectional Study in Iran

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### ABSTRACT

**Background and Objective:** Health literacy is one of the most important factors, which helps women to maintain and promote their self-care behaviors. It also helps them to have better versions of themselves by taking life-saving self-care activities and facilitating the process of preserving and endorsing their health. This study aimed to investigate the relationship between health literacy and self-care among women who live in the different parts of the city of Yazd.

**Materials and Methods:** In a cross-sectional study, 737 women were selected to participate in this study through multi-stage cluster sampling from Jun, 2020 to October, 2020. Data were collected using a researcher-made self-care questionnaire and Chinn and McCarthy's Health Literacy Scale (AAHLS). Descriptive statistics, ANOVA test and structural equation model were used through SPSS and AMOS software version 24 to analyze data.

**Results:** The results revealed that the effect of health literacy on self-care was positive and significant ( $\beta=0.51$ ,  $p<0.001$ ). The effectiveness rates of health literacy on women's self-care in the suburb, central, and upper parts were 0.56, 0.50, and 0.42, respectively ( $p<0.001$ ). The fit indices showed that the model had a good fit (CMIN/DF= 2.341, NFI= 0.915, RMSEA= 0.030, CFI= 0.949, TLI= 0.926, GFI= 0.965, IFI= 0.950). Women living in the upper parts had relatively higher levels of self-care and health literacy compared to those living in the marginal parts of the city.

**Conclusion:** Health literacy plays an effective role in promoting women's self-care performance. Therefore, medical sociologists recommend relevant educational interventions to promote health literacy and self-care behavior in women.

**Paper Type:** Research Article

**Keywords:** Health literacy, self-care, women, Health behavior.

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## Introduction

Health literacy is a term which was introduced in the 1970s. It is importance concept in field of healthcare (1,2), Health literacy is defined as an individual's capacity to obtain, interpret and understand basic health information and services, and the ability to use the information and services in ways that improve health(3).

The World Health Organization (WHO) considers health as a multidimensional and multifaceted process consisting of physical, mental, social, and spiritual dimensions (4). Likewise, self-care behavior was defined as a strategy for maintaining and promoting health in society, and it is a multidimensional process that consists of physical, mental, spiritual, social, and entertaining dimensions (5-7).

Based on Dorothea Orem's hypothesis, self-care is a learned behavior that is under influence of some factors such as social characteristics (8). But the point that has been underestimated in the self-care approach is that self-care ability is an individual achievement and an individual's behaviors are the main factor to achieve appropriate self-care ability (9,10). Social factors are the main determinate that influences human behavior. One of the social factors which may influence self-care ability is health literacy. Health literacy plays a key role in an individual's capability in health-related activities (11). In fact, without health literacy, it is not possible for women to develop self-care behaviors. Women as mothers and wives not only have to take care of their own health in order to fulfill their individual and social roles, but they are also responsible for taking care of the physical, mental and social health of their husbands and children. Such a condition underscores the role of health literacy as one of the factors affecting self-care behaviors among women.

The number of studies on health literacy is increasing (12, 13), however, the role of health literacy has been less studied in comparison to other social variables such as social support and economic capital in generating self-care negligence and the reproduction of health inequalities in Iran. There is even no specific academic literature on the relationship between health literacy and self-care. Therefore, it seems necessary to conduct research on health literacy concept as main factor that related to health inequalities. it was evidenced that health literacy can provide better transparency to interpret the social inequalities in the field of health.

The current literature indicates that there is a significant relationship between health literacy and self-care. Yongbing et al. (2015) showed that promoting the health literacy of the elderly is very important in improving self-care performance (14). Klinker et al., (2020) also noticed that a low level of health literacy is significantly associated with unhealthy behaviors such as alcohol consumption, smoking, and low frequency of breakfast consumption (15). Also, according to the results of Uysal et al., study (2019), health literacy has a significant relationship with health-promoting behaviors such as health responsibility, physical activity, and stress management (16). In addition, in the studies were conducted in Iran, health literacy has been found a key factor in improving health (17, 18).

According to the available evidence, health literacy has a direct impact on self-care behavior because a person's level of health literacy affects their ability to understand, process, and use health-related information in taking care of themselves.

Given the importance of health literacy and self-care in the field of health, the present study

aimed to investigate the relationship between health literacy and self-care among women who lived in the different part of the city of Yazd as well as identify differences in self-care behaviors and health literacy across regions in Yazd..

#### Materials and Methods

**Study design and sample:** This was a cross-sectional study to investigate the relationship between health literacy and self-care behavior among women in Yazd. The study was conducted from 5th June 2020 to 30th October 2020 in Yazd, Iran.

The study population consisted of all the women living in Yazd. In Yazd, municipality regions have been divided into different neighborhoods (upper, central and suburb parts) based on previous studies as well as the neighborhoods' characteristics such as the quality of the buildings, the socio-economic characteristics of the residents, the residents' education qualifications, and the health and service indicators (19). Sadrabad, Hasanābād, and Eskin neighborhoods were considered as the suburb parts, Naiemabad, Azar Yazdi, and Razmandegan neighborhoods as the central parts, and Jomhourī Blvd., Safaeieh, and Maskan neighborhoods as the upper parts of Yazd.

In order to estimate the sample size, a pilot study was first conducted on 50 women to determine the variance of self-care ability. Then, the sample size was determined to be 246 for each parts in Yazd based on Cochran's sample size formula for a large population (error= 5%; 95% CI) (20). The final sample size was estimated to be 250 for each groups with considering incomplete questionnaires and loss to follow-up cases. All questionnaires were given to eligible participants residing in each part of the city between June and October 2020. A total of 737 legible questionnaires were collected and analyzed (Table 1).

A cluster sampling method was also used to collect data.

$$n_0 = \frac{(t)^2 * (s)^2}{(d)^2}$$

**Table 1. Frequency distribution of respondents based on parts**

Parts	Neighborhoods	Frequency
suburb	Hasanābād	82
	Sadrabad	82
	Eskan	82
	Total	246
Central	Naiemabad	81
	Razmandegan	82
	Azar Yazdi	83
	Total	246
Upper	Jomhourī Blvd	82
	Safaeieh	81
	Maskan	82
	Total	245

Participants met the inclusion criteria if they were 18 to 70 years old and were living in the Yazd for more than 2 years. From each house, only one person was selected. Participants were excluded if they were temporary residents in the neighborhood, unwilling to participate in the study, and had health problems (such as blindness and deafness).

If no one was home, interviewers returned at another time. likewise, interviewers had permission to select the next house If no resident was available on the return visit, there was no eligible individual at home, or the eligible respondent refused to participate in the study. Face-to-face interviews were conducted on the

**Table 2. Test-Retest and Content Validity Indicators of Questionnaire on self-care Among women, Yazd, Iran**

Row	Phrases	I-CVI Relate	I-CVI Clarity	I-CVI Simplicity	CVR
1	Reading a book about something that you wouldn't normally read about.	0.83	0.93	0.83	0.83
2	Watching a documentary.	0.83	0.86	0.83	0.75
3	Signing up for a class.	0.83	1	0.83	1
4	Doing crosswords or Sudoku puzzles.	0.83	0.93	0.91	0.91
5	Learning a new language.	0.83	0.93	1	0.83
6	Making a conscious effort to appreciate positive things in the life.	0.83	1	1	0.91
7	Dealing with negative emotions by changing the way I think about the situation.	0.91	0.86	0.83	0.83
8	Using the sense of humor to keep things in perspective.	0.83	0.93	0.91	1
9	Cherishing your optimism and hope.	0.83	1	0.91	0.83
10	Sharing the feelings with others during stressful times in your life.	0.91	1	0.91	0.91
11	Having hope that things will get better.	0.83	1	0.83	0.83
12	Taking time for recreational or leisure activities.	1	0.93	1	1
13	Taking time to relax throughout the day.	0.91	0.93	0.91	0.91
14	Striving for balance among work, family, relationships, play, and rest.	0.83	0.93	0.83	0.83
15	Setting time to relax and unwind.	0.83	0.79	1	0.91
16	Engaging in a hobby, or a recreational/social activity that I enjoy.	0.83	0.93	0.91	0.83
17	Sharing a fear, hope, or secret with someone I trust.	0.91	1	1	0.91
18	Spending enough time interacting with people who make you happy.	0.91	1	0.91	1
19	Having the ability to comfortably say no	0.83	1	0.91	0.83
20	Having someone you can rely on if you need help or guidance.	0.91	0.93	1	0.83
21	Staying in contact with faraway friends.	0.83	1	0.83	0.91
22	Spending time in nature.	0.83	1	0.83	1
23	Drinking enough water.	0.83	1	0.83	0.83
24	Dancing, swimming, walking, running, playing sports, singing, or doing a physical activity	0.91	1	0.91	0.91
25	Sleeping at least 7 hours per night.	0.83	0.93	1	0.83
26	Consuming a healthy balance of fruits, vegetables, grain, fats, and protein.	1	1	0.83	0.91
27	Feeling good about forgiving others.	0.83	1	1	0.83
28	Feeling satisfied with helping and giving gifts.	0.91	1	1	0.83
29	Enjoying watching the sunrise and sunset.	0.83	0.93	0.91	1
30	Being sensitive about your weight.	1	0.93	1	1

doorstep, and it took 60–90 minutes. At first, interviewers explained the objectives of the study. The questionnaire was self-administered for literate participants, while some questionnaires were filled by the interviewers for those who were illiterate.

**Questionnaire:** Data were collected using a researcher-made self-care questionnaire and Chinn and McCarthy (2013) AAHLS scale (21). Considering the operational definitions of self-care (5,7,22,23) to measure self-care in the present study, we concluded that in some questionnaires, some different aspects of self-care were addressed or some items in some questionnaires were not particularly suitable for our society. Therefore, it was decided to combine the dimensions of these questionnaires and prepare a comprehensive questionnaire. In this regard, 12 copies of the questionnaire were provided to 7 experts in the field of sociology, 3 experts in the field of demography, and 2 experts in the field of psychology. Based on the main objective of this study, they were asked to comment on the content validity ratio (CVR) of the questionnaire (the necessity of the items), and the content validity index (CVI) of the questionnaire (simplicity and fluency, relevance, or specificity and clarity or transparency of the items). Finally, items with CVR equal to and greater than 0.75 and CVI equal to and greater than 0.79 were remained in the questionnaire (Table 2).

**The self-care questionnaire was designed based on 30 items in 6 domains:** physical self-care (5 items), psychological self-care (5 items), spiritual self-care (5 items), social self-care (5 items), recreational self-care (5 items), and intellectual self-care (5 items). The dimensions of self-care were measured on a five-point Likert scale (1: never, 2: sometimes, 3: often, 4: usually, 5: always). The maximum score was 150 and the minimum score was 30. Higher scores indicated

a higher level of self-care. Cronbach's alpha of 0.760 was obtained on this scale.

**The health literacy questionnaire had 13 items in 3 domains:** functional health literacy (3 items), communicative health literacy (3 items), and critical health literacy (7 items). The items were scored on a three-point Likert scale ranging from 1 to 3. The reliability of the scale was acceptable (Cronbach's alpha= 0.728). Validity and reliability of this questionnaire were also confirmed (Cronbach's alpha= 0.74)(21).

**Statistical analysis:** All analyses were conducted using SPSS and Amos version 24. Descriptive analysis was used to identify women's characteristics with regard to demographics and study constructs. The independent variable of interest (i.e., health literacy) was found to be impressive; thus, it was decided to use a structural equation model (SEM) to test for the differences in the coefficients in health literacy and self-care among the three different groups (suburb, central, and upper parts).

**Ethical approval:** The present article is the result of the doctoral dissertation, and it has been approved by the National Ethics Committee for Biomedical Research (REDACTED).

## Results

The mean age of the all participants was  $35.4 \pm 11.3$ . The mean age for participants who lived in suburb, central and upper parts of Yazd were  $35.83 \pm 10.85$ ,  $35.74 \pm 11.45$ , and  $34.5 \pm 11.67$ , respectively. . Most participants were housewives/homemakers (42.9%), 33.9% were employee and, and 2.6% were retired. The mean education level of the participants was  $12.8 \pm 3.7$ . (Table 3).

**Table 3. Demographic characteristics of the participants in a survey of health literacy and self-care in Yazd, Islamic Republic of Iran, 2020**

Characteristic	parts	Mean (SD)
age	Suburb	35.83 (10.85)
	Central	35.74 (11.45)
	upper	34.53 (11.67)
	Total	35.37 (11.33)
Educationlevel	Suburb	10.83 (3.75)
	Central	13.62 (3.43)
	upper	13.96 (3.12)
	Total	12.83 (3.71)
Occupation	parts	No.(%)
Employee	Suburb	55 (22.7)
	Central	83 (34.2)
	upper	112 (45.9)
	Total	250 (33.9)
Student	Suburb	19 (7.9)
	Central	45 (18.5)
	upper	42 (17.2)
	Total	106 (14.5)
Housewife/ homemaker	Suburb	149 (61.6)
	Central	93 (38.3)
	upper	71 (29.1)
	Total	313 (42.9)

Characteristic	parts	Mean (SD)
Unemployed	Suburb	10 (4.1)
	Central	13 (5.3)
	upper	6 (2.5)
	Total	29 (4.0)
Retired	Suburb	5 (2.1)
	Central	8 (3.3)
	upper	6 (2.5)
	Total	19 (2.6)
Other	Suburb	4 (1.7)
	Central	1 (0.4)
	upper	6 (2.5)
	Total	11 (1.5)

\* Based on Frequency

Comparison of women in terms of self-care score showed a significant difference between them ( $P < 0/001$ ). The mean self-care score of women living in the upper parts was higher than that of women living in the middle and marginal parts of Yazd. Moreover, there was a significant difference between the two groups of women in terms of health literacy; the mean health literacy score of women living in the upper and middle parts was higher than that of women living in the marginal parts of Yazd ( $P < 0/001$ ) (Table 4).

**Table 4. The output of ANOVA test on the comparison of the level of self-care and health literacy of women in the different parts of Yazd**

Variable	Part	Mean (SD)	F	P value	Part	Mean Difference	Pvalue	
Self-care	Suburb Central	94.66 ± 11.49	16.883	0.000	Marginal	Middle	-1.815	0.165
						Upper	-5.672*	0.000
	upper Suburb	97.21 ± 12.37			Middle	Marginal	1.815	0.165
						Upper	-3.857*	0.000
	Central	100.20 ± 14.15			Upper	Marginal	5.672*	0.000
						Middle	3.857*	0.000
Health literacy	Suburb Central	24.57 ± 4.75	11.953	0.000	Marginal	Middle	-1.636*	0.000
						Upper	-1.678*	0.000
	upper Suburb	26.21 ± 4.08			Middle	Marginal	1.636*	0.000
						Upper	-0.041	0.994
	Central	26.25 ± 4.14			Upper	Marginal	1.678*	0.000
						Middle	0.041	0.994

\* Based on One- way ANOVA test

Based on the structural equation model, the relationship between the health literacy and self-care was examined separately in different

parts of Yazd, the outputs were interpreted, and the coefficients of these three groups were compared (Figures 1 to 4).

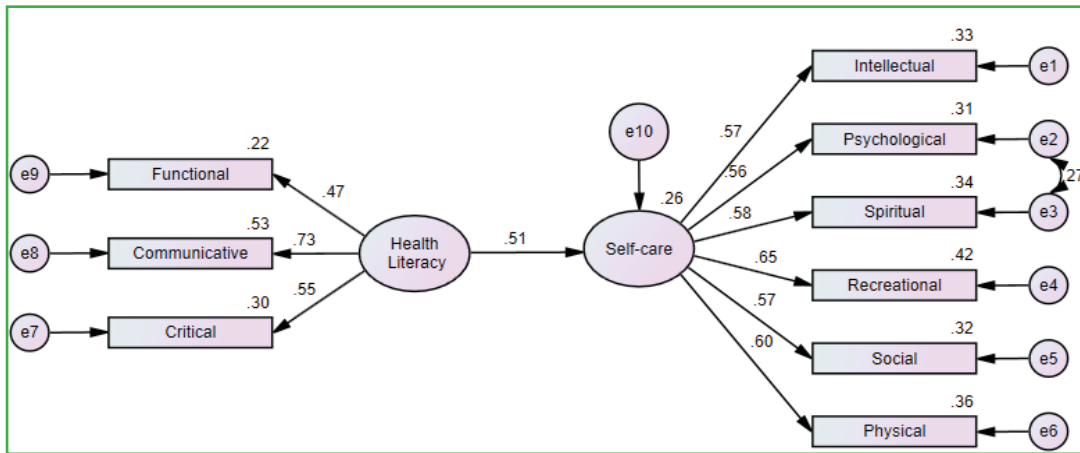


Figure 1. The structural equation model on relationship between health literacy and self-care among all participants

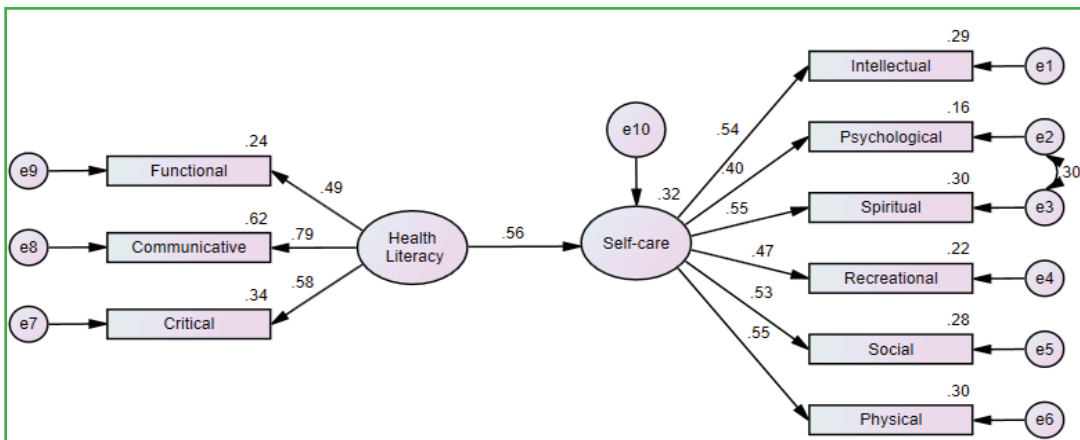


Figure 2. The structural equation model on relationship between health literacy and self-care among participants who live the suburb areas of Yazd

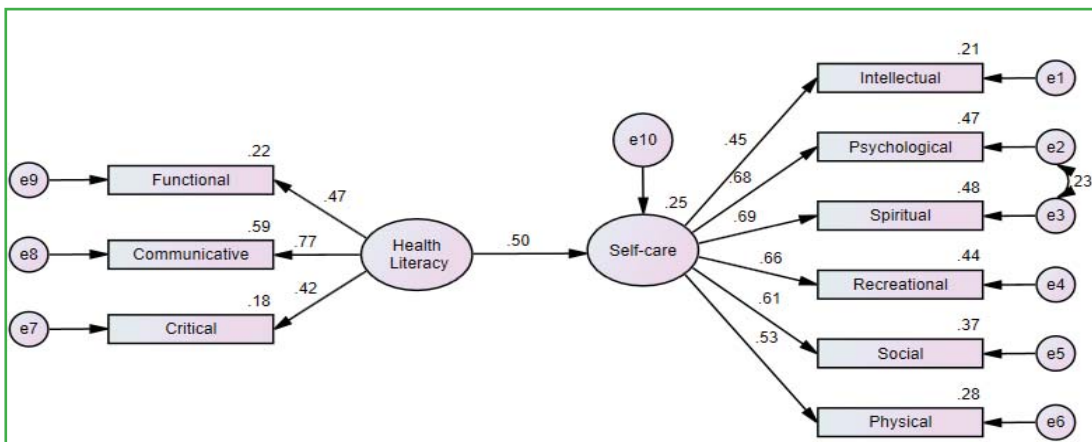


Figure 3. The structural equation model on relationship between health literacy and self-care among participants who lived in the central parts of Yazd

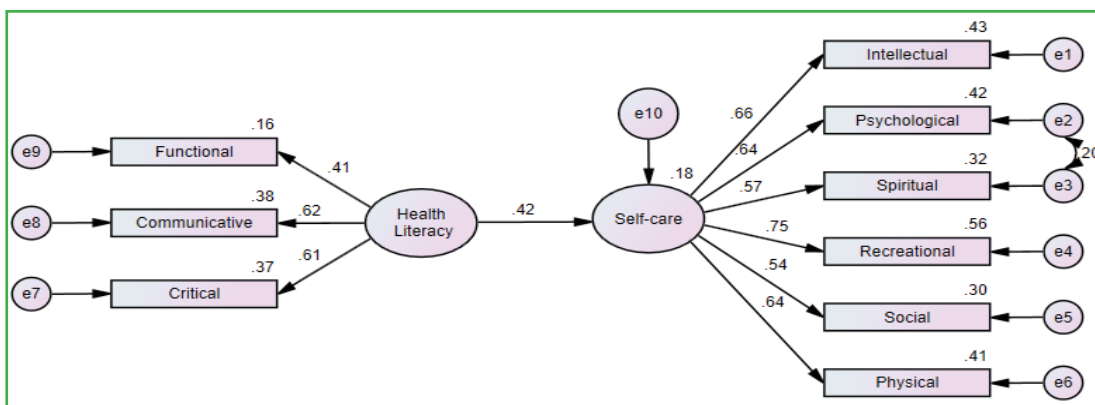


Figure 4. The structural equation model on relationship between health literacy and self-care among participants who lived in upper parts of Yazd

The results of the present study revealed that health literacy had significant and positive effects on the general self-care behavior of the participants ( $\beta = 0.51$ ,  $p < 0.001$ ). It also had significant and positive effects on the self-care behavior of women living in the suburb ( $\beta = 0.56$ ), central ( $\beta = 0.50$ ), and upper ( $\beta = 0.42$ ) parts of

the city ( $p < 0.001$ ).

We used the model fit indexes to estimate the model fit. The models was adequately fit the data (CMIN/DF= 2.341, NFI= 0.915, RMSEA= 0.030, CFI= 0.949, TLI= 0.926, GFI= 0.965, IFI= 0.950)(Table 5).

Table 5: The fit indices of the structural equation model of health literacy and self-care

indexes	values	acceptable range	indexes	values	acceptable range
CMIN	234.098	--	IFI	0.950	>.90
DF	100	--	TLI	0.926	>.90
CMIN/DF	2.341	<3	CFI	0.949	>.90
GFI	0.965	>.90	RMSEA	0.030	<0.06
NFI	0.915	>.90	-	-	

## Discussion

The purpose of this study was to investigate the relationship between the health literacy and self-care behaviors among women residing in the suburb, central, and upper parts of the city of Yazd in the year 2020. The findings indicate that health literacy can help to predict self-care behaviors in women. The results not only show a significant positive relationship between health literacy and self-care but also provide new evidence to account for health inequalities.

A comparison between women in the different

parts shows that self-care behaviors are practiced more by the women in the upper part than the other two parts ( $P < 0.001$ ). The results indicate that there is significantly less access for the women to health literacy in the suburb part ( $P < 0.001$ ). Inequality of health literacy can be due to the differences in benefiting from features that affect health literacy such as literacy skills, consciousness level, culture, experience, and access to the general health systems (13).

Our findings are similar to the study of



Izadiradand Zareban(24), Shariatinia et al.(25). they showed that in deprived provinces such as Yasuj and Sistan, and Baluchestan, the level of health literacy is not at the desired level.

The results of the current study indicate that health literacy had a positive and significant relationship with self-care behaviors. Our finding showed that self-care behaviors increased when level of the participants' health literacy increased.

Furthermore, the scientific evidence shows that in order to achieve the desired level of self-care among women, a set of basic conditions (e.g., environmental conditions, individuals' health literacy) are required leading to appropriate an outcome in health through certain causal mechanisms (26-27). Rezaee and Seraji reported that the degree of the participants' health literacy was directly related to the self-care behaviors (28).Tira and Rahvar also showed that the higher level of "decision making and behavior" dimension of health literacy cause higher self-care (29).Liu et al., reported that the promotion of health literacy plays an important role in increasing the well being of people in society (30). Further, Cudjoe et al., showed that health literacy is a significant determinant of health behaviors (31).

These studies indicated that the health literates are not individuals with the freedom to achieve and improve their health literacy level but, rather, their level of health literacy is largely influenced by various social factors such as educational level, economic status, and many problems that women are constantly struggling with in affairs related to the family, children, and so on. For example, women living in the suburb parts with lower self-care compared with other women who lived in other parts have lower levels of health literacy and education. Therefore, this group of women do not observe self-care behaviors for their low awareness resulting from their low level of education and health literacy

skills due to many concerns in their livelihoods. Nevertheless, women living in the upper part of the city have more opportunities to improve their health literacy due to their better economic situation, higher level of education, and less worries.

**Limitations:** One of the limitations of this study is related to the self-report approach used to complete the questionnaires, and the lack of direct access to the subjects due to covid-19 pandemic, which may reduce the accuracy of the collected data.

The strength of this research was that it was a pioneering study in Yazd to investigate self-care behaviors and health literacy simultaneously. Thus, the present findings can provide useful information on self-care behaviors and health literacy among women residing in Yazd for the authorities and decision-makers.

**Conclusion:** The present study showed that a significant difference in health literacy and self-care behaviors between the three groups of women living in the suburb, central, and upper areas in the city of Yazd. It was also found that health literacy has a positive and significant effect on the self-care behavior of women living in the different areas of the city. The higher level of health literacy in women cause better self-care performance. Therefore, it is worthwhile to pay attention to this variable in the preparation and development of health promotion programs.

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